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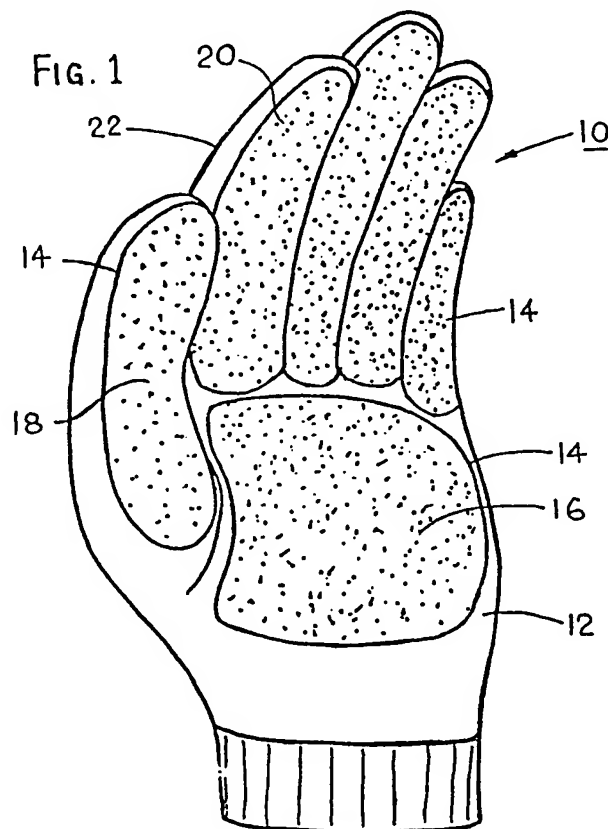
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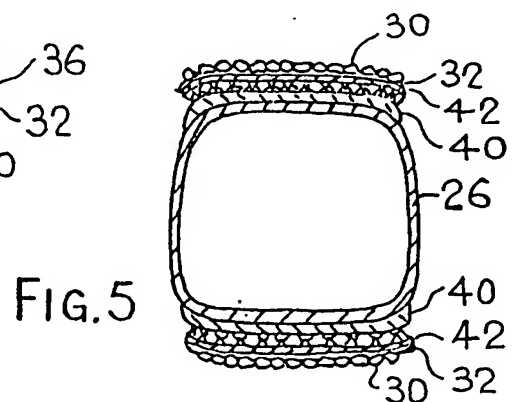
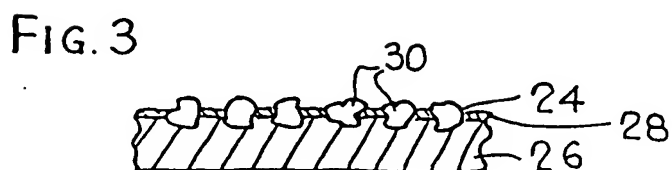
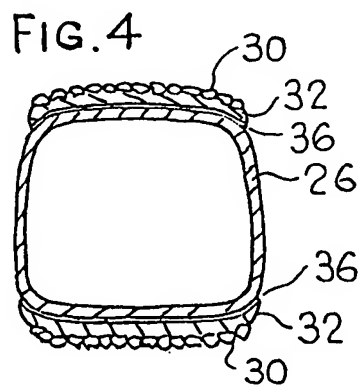
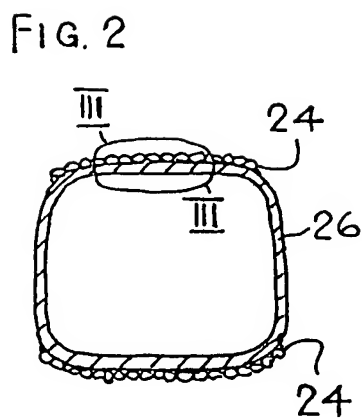
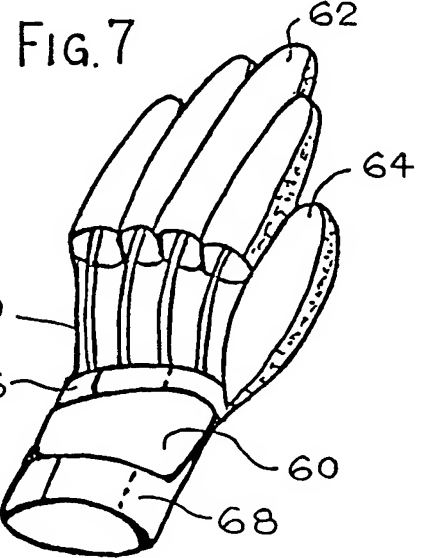
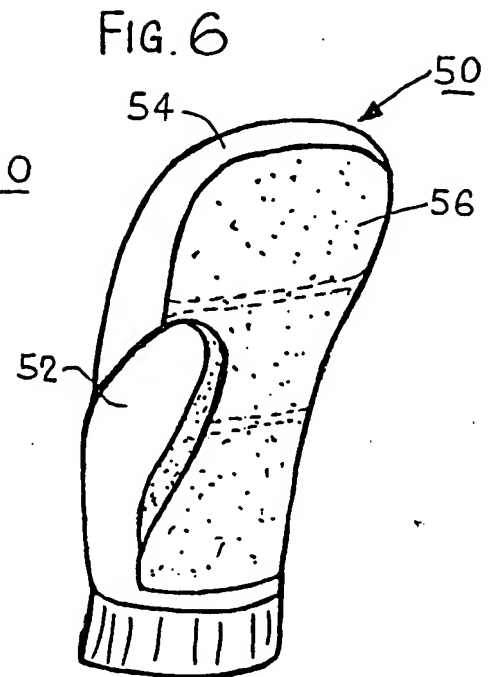
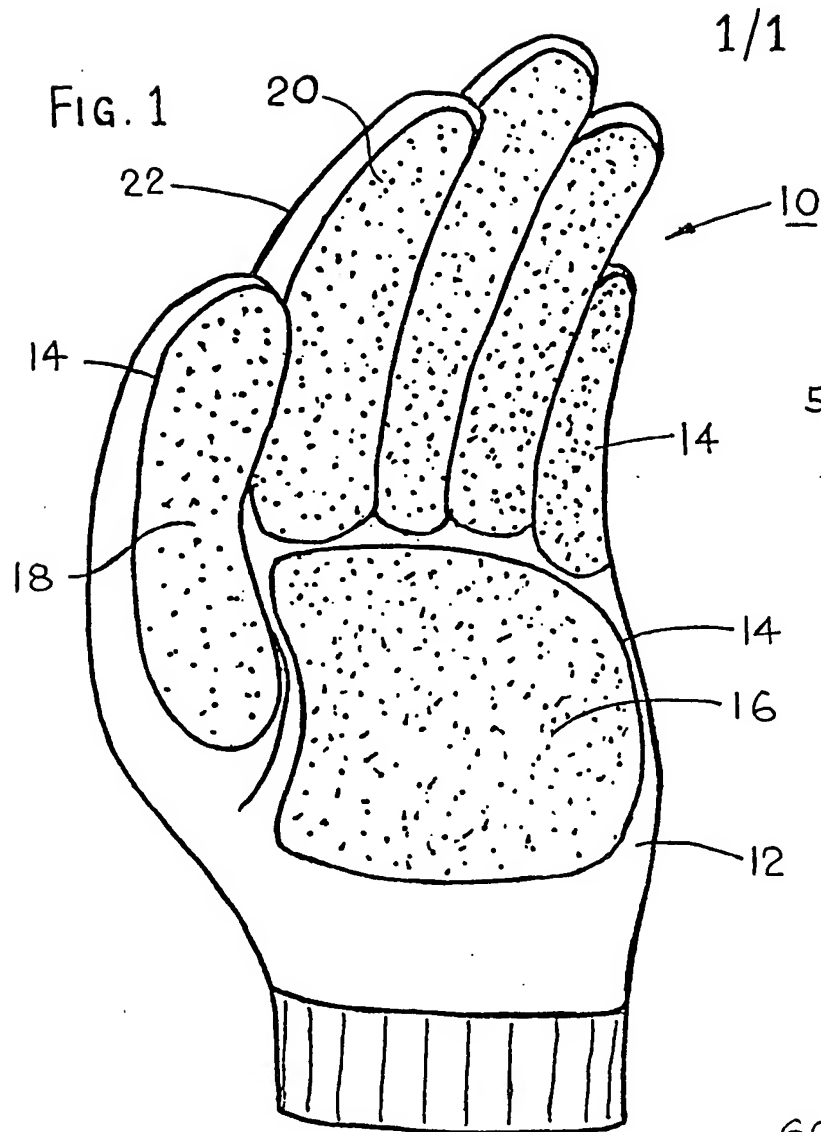
A3V

(54) Gloves for cleaning, smoothing and/or polishing objects

(57) A means for effecting cleaning, smoothing and / or polishing of objects (such as vegetables and rigid metal, wooden or plastics objects) comprises a soft compliant glove (10) to selected surfaces (16 to 20) of which abrasive materials (14) are secured permanently, or releasably for renewal purposes when worn. The glove may be waterproof for performing wet operations, and the abrasive material may incorporate particulate abrasive substances, or metal wool, or an analogous plastics matrix preferably embodying abrasive particles.



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## SPECIFICATION

**Gloves for cleaning, smoothing and/or polishing objects**

5 This invention relates to means for facilitating the cleaning, smoothing and/or polishing of objects and articles manually.

It is known to use for such purposes abrasive materials applied to thin, flat poorly-flexible sheets or substrates, and to apply those sheets to a conveniently-shaped holder, which holder may be held or gripped manually. By means of such a holder, the abrasive material may be brought into contact with and rubbed against the object or article to be cleaned, smoothed and/or polished.

For some operations, the use of such a holder is not particularly convenient or advantageous. The holder is rigid, and its shape fixed, so that the abrasive sheet material cannot readily conform to randomly-curved surfaces of the object being worked. Furthermore, the holder may slip out of the hand, or the abrasive-carrying sheet off the holder during use.

According to the present invention, abrasive material is applied to or comprises at least part of the outer, compliant, flexible surface of a glove, preferably at least such a surface on the palm-side of the side of the glove. The glove may have a full complement (five) of thumb and finger parts for receiving the respective thumb and fingers of the wearer's hand; alternatively, the glove may have fewer than four such finger parts, for receiving only a selected number of fingers; or the glove may be in the form of a mitten having a thumb part, and a single finger part for receiving all four fingers together.

The glove may have a back portion which covers the whole of the back of the hand, or a back portion which covers only selected portions of the back of the hand, e.g. in the form of straps (as in the manner of a cricketer's gloves).

The gloves may be made from any suitable flexible, compliant material, such as a woven textile material of natural or synthetic fibres, e.g. cotton or nylon, or a continuous web or film of a rubber or plastics composition; and may be made by any conventional method, such as by sewing together appropriately-shaped glove parts, or by moulding, or by coating a previously prepared base glove of a woven material with an appropriate outer casing or coating (such as of rubber or PVC).

The abrasive materials may be applied to and secured directly on the desired surfaces of the glove, using adhesives or other bonding means; or they may be applied indirectly and be secured by mechanical retaining means; or they may be incorporated integrally with the material of the glove during its manufacture.

Alternatively, the abrasive material may be applied to and secured on a suitable compliant, flexible substrate (e.g. a thin flexible sheet or film material), or be incorporated in a suitable matrix of fibres or filaments, which substrate or matrix is then attached permanently (i.e. that is, it is not intended to be

removed), or detachably to the desired surfaces of the glove.

Any suitable form of abrasive material may be used, as appropriate to the selected method of fabricating the gloves and the purpose for which the gloves are intended. Examples of such abrasive materials include (a) particles of glass, sand, silicon carbide, diamond and jeweller's rouge; (b) wire wool or its equivalent made from plastics materials; and (c) a random matrix of a (preferably) plastics material incorporating particles of a suitable abrasives material.

Gloves embodying the present invention may be used for performing various cleaning, smoothing and/or polishing operations, in both the household and in the workshop, and with or without the associated use of a liquid cleanser and/or lubricant, such as for example, water, a detergent, or oil.

The choice of glove materials, the manner of their construction and the method of their fabrication are to be determined in each case by the intended purpose of the gloves.

Other features of the present invention will appear from the description that follows hereafter, and from the claims appended at the end of the description.

Various forms of glove embodying the present invention will now be described, by way of example, with reference to the accompanying diagrammatic drawings, in which:-

*Figure 1* shows pictorially a full glove embodying the present invention, as seen from the palm side of the glove;

*Figure 2* shows a transverse section through a finger portion of the glove of *Figure 1*;

*Figure 3* shows to a larger scale a part of the sectional view of *Figure 2*, being the part enclosed within the loop indicated at III-III in the *Figure 2*;

*Figure 4* shows a transverse section similar to that of *Figure 2*, illustrating an alternative form of construction;

*Figure 5* shows likewise a transverse section similar to that *Figure 2*, again showing an alternative form of construction;

*Figure 6* shows pictorially a mitten embodying the present invention, and having the novel features of the glove of *Figure 1*, as seen from the palm side; and

*Figure 7* shows pictorially an open-backed glove embodying the present invention, as seen from the back side of the glove.

Referring now to the *Figures 1* and *2*, there is shown there a glove 10 of conventional shape, which glove totally encloses and protects the wearer's hand, and is made of a soft compliant flexible material. The glove is provided on its palm side 12 only with a plurality of separate abrasive particle-loaded surfaces 14 (for purposes that will be set out later), which surfaces cover respectively a palm zone 16, a thumb zone 18, and four finger zones 20. If desired, as in an alternative form of the glove, those surfaces are extended and amalgamated to form one continuous abrasive particle-loaded surface covering the whole of the palm side of the glove. In yet a further alternative form of the glove, similar abrasive particle-loaded surfaces (not shown) covering a

plurality of such separate zones, or one such continuous zone, are provided on the back side 22 (i.e. opposite the said palm side) of the glove.

In one format of the glove shown in the Figure 1, or the said alternative forms of that glove, the glove comprises a single-piece item, being moulded in conventional manner from a suitable rubber composition so as to provide a thin, elastic, waterproof glove for performing wet operations, i.e. operations carried out with a suitable cleansing, lubricating or polishing liquid, such as water or oil.

The said particle-loaded surfaces 14 are constituted by a layer of abrasive particles 24 secured permanently to the rubber glove material 26 by a suitable adhesive 28. The abrasive particles 30 may be partially embedded in the rubber glove material 26 as shown in the Figures 2 and 3, or be disposed totally superficially thereon, in this latter case being retained thereon wholly by means of the adhesive material.

In an alternative format of the glove shown in Figure 1, each said abrasive particle-loaded surface is constituted by a separate, thin, flexible substrate 32 (Figure 4) of the same composition as the glove itself, or a different composition chosen for its ability to retain the abrasive particles in position, which substrate is secured by an adhesive to the appropriate outer surfaces of the glove, and which substrate has secured permanently thereon a layer of such abrasive particles 30, which particles are retained by an adhesive material.

In a further embodiment of the glove of Figure 1, or of the said alternatives of that glove, the glove material comprises instead a thin flexible moulded PVC material, and the said substrate comprises the same or a similar PVC material.

In yet a further embodiment of the glove of Figure 1, or of the said alternative forms of that glove, the glove comprises a base glove of a conventional woven material of natural or synthetic fibres (e.g. cotton or nylon), or to which base glove is intimately secured (e.g. as by a dipping or a coating process) a covering of a thin, flexible, waterproof material such as rubber or PVC.

In still another embodiment of the glove of Figure 1, or of the said alternative forms of that glove, the glove is intended for use in dry operations, and comprises a conventional woven or knitted fabric of natural or synthetic fibres (e.g. cotton or nylon), being made up by sewing together appropriately shaped glove pieces in conventional manner. As shown in Figure 4, each said abrasive particle-loaded surface is constituted by a piece of thin, flexible substrate 32 of, for example, rubber, nylon or PVC, loaded superficially on one side with abrasive particles and secured to the relevant parts of the woven fabric glove, permanently as by use of an adhesive 36, as shown in Figure 4, or detachably as by the use of releasable retaining means, as shown in Figure 5. Such a retaining means may comprise, for example, a pair of opposed pads 40, 42 secured respectively to opposed surfaces of the glove material 26 and the substrate 32, one of said pads carrying a mass of upstanding loops, and the other pad carrying a mass of small hooks for engaging those loops when the

pads are pressed firmly together. A retaining means of that form is readily available commercially under the registered trade mark VELCRO. Alternatively, said substrate may be secured in place by press studs, or by bands which pass around appropriate parts of the glove.

In Figure 6 there is shown a mitten 50 having a thumb portion 52 and a single finger portion 54 for receiving all four fingers of the wearer's hand. The palm side of the mitten has provided thereon an abrasive particle-loaded surface 56 which extends continuously from the said palm zone through to the said thumb zone and the said finger zones. The mitten may be fabricated in any of the various forms described above in relation to the gloves of the earlier Figures, and its abrasive surfaces may be constituted and be secured to the mitten in any of the manners described above.

The gloves and mittens described above all totally enclose, and thus protect, the whole of the wearer's hand. In modified versions of those gloves and mittens, the parts which cover the back of the hand are largely omitted, being replaced by straps or bands which cross the back of the wearer's hand. One example of such an open backed glove is shown in the Figure 7, and comprises a palm portion 60 carrying at its respective extremities four finger stalls 62, a thumb stall 64, and two wrist-encircling straps 66, 68.

Instead of forming the said abrasive surfaces of the gloves with layers of particulate abrasive materials, those surfaces may comprise instead webs or pads of a steel wool (or its plastics equivalent), preferably attached indirectly to the gloves by means of releasable flexible substrates, so that such webs or pads may be readily replaced when worn. A particularly suitable form of a 'plastics wool' is that constituted by a random matrix of a plastics fibrous material, in which matrix are secured abrasive particles. Such a matrix material is commercially available under the registered trade mark SCOTCH-BRITE.

If desired, for special operations only specific areas useful in performing those operations are provided with abrasive surfaces: at the other extreme, the whole of the external surface of the glove may be provided with superficial abrasive material.

Where the glove comprises a woven material, that material may itself be rendered impervious to the ingress of dust produced when using the gloves, by the incorporation therein of a thin, compliant plastics film, such as polyethylene. By that means, a wearer's hands may be protected from discoloration or contamination during, for example, the process of cleaning silver objects.

Gloves embodying the present invention may be used in the kitchen, for example, as a means for cleaning and/or removing the outer skins of potatoes and other vegetables, preferably under water. In that case waterproof gloves are desirable. Gloves of a soft woven material and impregnated with jeweller's rouge, or having detachable pads so impregnated, may be advantageously used for cleaning silver and other metal objects that need cleaning and polishing from time to time.

In the workshop, gloves according to the present invention may be used for removing rust or other forms of contamination from metal objects, and for smoothing the surfaces of metal, plastics and wooden articles. Gloves of appropriate construction in accordance with the present invention enable an article to be readily handled, and at the same time to be rubbed in the hands to achieve the desired cleaning and/or polishing action, even on objects having very irregular or randomly curved surfaces.

#### CLAIMS

1. A glove arranged to fit a wearer's hand, which glove comprises a material of a soft compliant nature, which material carries or incorporates an abrasive material over at least one predetermined area of the external surface of the glove, whereby the wearer of such a glove may apply said abrasive-carrying area to and move it in contact with a surface of an object that is to be cleaned, smoothed and/or polished.

2. A glove according to claim 1, wherein said glove material carries or incorporates said abrasive material over a plurality of predetermined separate areas of said external surfaces of the glove.

3. A glove according to claim 2, wherein said external surface area or areas extend over a palm zone, a thumb zone, and one or more finger zones on the palm side of the glove.

4. A glove according to claim 3, wherein said glove material carries or incorporates abrasive material over one or more said external surface areas disposed on the back side of the glove.

5. A glove according to any preceding claim, wherein said glove material comprises or incorporates a layer of a material which is impervious to the ingress of liquids and particles through to the wearer's hand enclosed in the glove, so that that hand is protected from said liquid and particles, when the glove is in use.

6. A glove according to claim 5, wherein said layer comprises a layer of a soft compliant rubber or plastics material.

7. A glove according to claim 6, wherein said layer is carried externally on a base glove material.

8. A glove according to claim 7, wherein said abrasive material is secured on said glove material by a non-releasable retaining means.

9. A glove according to claim 8, wherein said abrasive material is bonded to said external impervious layer.

10. A glove according to claim 9, wherein said abrasive material is partially embedded in said external impervious layer.

11. A glove according to any one of the claims 1 to 7, wherein said abrasive material comprises an abrasive surface element or pad secured on said glove material.

12. A glove according to claim 11, wherein said abrasive surface element or pad is secured on said glove material by a bonding agent.

13. A glove according to claim 11, wherein said abrasive surface element or pad is secured on said glove material by a manually releasable retaining

means.

14. A glove according to any preceding claim, wherein the abrasive material comprises or incorporates abrasive substances in particle form.

15. A glove according to claim 14, wherein said abrasive material comprises a thin compliant substrate to which a said particulate abrasive substance is secured.

16. A glove according to claim 14, wherein said abrasive material incorporates a thin compliant web constituted by a matrix of a plastics fibre material, in which matrix a said particulate abrasive substance is secured or incorporated.

17. A glove according to claim 14, wherein said abrasive material incorporates a thin compliant web of metal wool.

18. A glove according to any preceding claim, wherein said glove material encloses the whole of the wearer's hand on both the palm side and the back side thereof.

19. A glove according to any one of the claims 1 to 17, wherein said glove material covers the palm side of the wearer's hand and only part of the back of the wearer's hand.

20. A glove according to any one of the claims 1 to 17, wherein the glove material is shaped as a mitten.

21. A glove according to any preceding claim, substantially as hereinbefore described with reference to any single Figure or group of associated Figures of the accompanying diagrammatic drawings.